

V-D. MORBIDITY STATISTICS IN OTHER FOREIGN COUNTRIES

The prevalence of respiratory symptoms has been investigated in several countries. As in the United States and Great Britain, there are several causes of respiratory symptoms including cigarette smoking, air pollution and industrial hazards.

1. Canada. As in the United States, there is an increasing mortality from bronchitis and emphysema in Canada (Gauthier, 1970; Neri et al., 1970). The morbidity statistics are less extensive in Canada. Anderson and others (1965) surveyed 246 males and 311 females in Chilliwack, British Columbia. Chronic respiratory disease was found to affect 29.3% of men and 18% of women between 25 and 79 years of age. The authors concluded that cigarette smoking was the most important single factor associated with respiratory diseases. Smoking caused a higher prevalence of respiratory symptoms in the following groups: 200 men and women 70 to 89 years old (Aguzzi et al., 1966); 310 male physicians 25 to 74 years old (Lefcoe and Wonnacott, 1970); 1,015 male employees in asbestos mines and mills (McDonald et al., 1972); and 1,138 Eskimos (Beaudry, 1968). The respective roles of air pollution, respiratory infections and social status have not been elucidated in these reports.

2. Sweden. The twin registry in Sweden has provided an unusual opportunity to investigate the morbidity among monozygotic and dizygotic pairs. In a group of 71 monozygotic twins with discordant smoking habits, there were more complaints of coughing and bronchitis

1005051420

from the twins who smoke or who smoke most (Cederlof et al., 1965; Lundman, 1966). In a survey of 9,168 individuals entered in the registry, the prevalence of the respiratory symptoms was higher among male smokers in urban than in rural areas. A specific urban factor was interacting in some way with smoking (Cederlof, 1966). The hypermorbidity among smokers was found also among smokers in smoking-discordant monozygotic twin pairs (Cederlof et al., 1966, 1967). The American twin registry revealed a similar conclusion (Cederlof et al., 1969; International Symposium, 1971).

The following surveys indicate a higher incidence of respiratory illness in smokers than in nonsmokers: 339 men 50 years old (Wilhelmsen and Tibblin, 1966; Wilhelmsen et al., 1969), 240 iron mine workers (Jørgensen and Svensson, 1970), and 22,250 urban and rural residents (Irnell and Kiviloog, 1968). In the last two reports, the extent of air pollution influenced the morbidity from cigarette smoking.

3. Finland. In a rural population and among area pulp mill workers, there is a difference in prevalence of respiratory symptoms both in smokers and in nonsmokers. The higher incidence in the industrial area may relate either to the pollution in the air or to the fact that it is in the Arctic area (Huhti, 1965, 1966; Huhti et al., 1970). In these surveys as well as in those conducted by Järvinen et al. (1966) and Ruikka et al. (1966), smoking was found to increase the incidence of respiratory illness.

1005051421

4. France. The higher prevalence of chronic bronchitis among smokers as compared with nonsmokers has been reported by Fréour et al. (1966), Kourilsky et al. (1966), Coudray et al. (1969), Brille (1969, 1970), Brille et al., 1970, Fournier and Zivy (1970), Golli (1970), Jancik (1970), and Vigy (1970). All of these reports confirm the observations previously made in the United States and Great Britain.

5. Germany. More than 30,000 questionnaires from 10 clinics of different towns in West Germany were analyzed (Ulmer and Reif, 1966). The nature of occupation influences the incidence of obstructive emphysema. Specific occupational types have been surveyed by others: asbestos workers (Hany et al., 1967), coal miners (Ulmer et al., 1968; Ulmer and Reichel, 1970; Ulmer, 1970) and chemical factory workers (Possner, 1970). The role of industrial exposure and cigarette smoking in the pathogenesis of pulmonary emphysema in Germany has been discussed by Wendel (1966).

6. Other Western European countries. In the Netherlands, Biersteker (1968, 1969) and Biersteker et al. (1969) reported an association between smoking and symptoms of chronic bronchitis among 1,000 male municipal employees. In Denmark, a group of 802 males and females over 50 years of age showed a lower ventilatory function in smokers than in nonsmokers (Hagerup and Larsen, 1971). In Copenhagen, a group of 156 welders was compared with a group of 152 other workers from the same plant (Fogh et al., 1969). The

1005051422

- PREGOWSKI W, BRYSEWICZ, CESARZ-FRANCZYK M, KORDECKA J, LESZCIBINSKI B, LUKJAN Z and SADOKIERSKA H: La bronchite chronique parmi les ouvriers d'une usine textile. Dépistage clinique et radiologique. Rev Tuberc Pneum 34: 753-5, 1970. 569
- PRINSLOO I and LAUBSCHER N F: Emphysema in South African gold miners. In: Pneumoconiosis, edited by H A Shapiro, Cape Town, Oxford University Press, London, 380-5, 1970. 570
- PUDELSKI J, OKLEK K and DELOFF L: Obraz epidemiologiczny przewlekłych nieswoistych chorób płuc u mieszkańców miasta zabrza. (Epidemiological situation of chronic non-specific diseases of the lung in inhabitants of the town of Zabrze.) Gruzlica 39: 604-9, 1971. 571
- RODRÍGUEZ R L, ACHÓN P M, RODRÍGUEZ S H, DE LA PAZ E, PITA DE LA VEGA H, DURAND O R and SOLLET G R: Hábito de fumar y diagnóstico al alta. Estudio de 453 casos. Rev Cuba Med 8: 559-67, 1969. 572
- RUIKKA I, SOURANDER L B and KASANEN A: The health of the aged in Turku. Ann Acad Sci Fenn Series A, 120: 1-50, 1966. 573
- SLUIS-CREMER G K and SICHEL H S: Ventilatory function in males in a Witwatersrand town. Am Rev Resp Dis 98: 229-39, 1968. 574
- SLUIS-CREMER G K, WALTERS L G and SICHEL H S: Chronic bronchitis in miners and non-miners: an epidemiological survey of a community in the gold-mining area in the Transvaal. Brit J Indust Med 24: 1-12, 1967a. 575
- SLUIS-CREMER G K, WALTERS L G and SICHEL H S: Ventilatory function in relation to mining experience and smoking in a random sample of miners and non-miners in a Witwatersrand town. Brit J Industr Med 24: 13-25, 1967b. 576
- STANEK V, FODOR J, HEJL Z, WIDIMSKY J, CHARVAT P, SANTRUCEK M, ZAJIC F and VAVRIK M: A contribution to the epidemiology of chronic bronchitis. Acta Med Scand 179: 737-46, 1966. 577
- STANESCU D C, PILAT L, GAVRILESCU N, TECULESCU D B and CRISTESCU I: Aspects of pulmonary mechanics in arc welders' siderosis. Brit J Industr Med 24: 143-7, 1967. 578
- STROBEL M and GSELL O: Mortalität in Beziehung zum Tabakrauchen 9 Jahre Beobachtungen bei Ärzten in der Schweiz. Helv Med Acta 32: 547-92, 1965. 579
- SZYMCZYKIEWICZ K E, KUNSKI H and GIELEC L: Clinical evaluation of the respiratory system in cotton workers. Pol Med Sci Hist 13: 110-4, 1970. 580
- TAKENOUCHI S: Epidemiological studies on chronic respiratory disturbances among employees in a certain organization's workshop. J Nara Med Assoc 19: 749-63, 1968. 581
- TSUMETOSHI Y, SHIMIZU T, TAKAHASHI H, ICHINOSAWA A, UEDA M, NAKAYAMA H, YAMAGATA Y and OHISHINO A: Epidemiological study of chronic bronchitis with special reference to effect of air pollution. International Arch Arbeitsmedizin 29: 1-27, 1971. 582
- ULMER W T: Emphysema of the lung: clinical and experimental investigations of its pathogenesis. Geriatrics 25: 164-9, 1970. 583

1005051423

- ULMER W T and REICHEL G: Zur Epidemiologie der chronischen bronchitis und deren Zusammenhang mit der Luftverschmutzung. (The epidemiology of chronic bronchitis and its relationship to air pollution.) Deutsche Med Wschr 95: 2549-54, 1970. 584
- ULMER W T, REICHEL G and WERNER U: Die chronisch obstruktive bronchitis des Bergmannes. Untersuchungen zur Häufigkeit bei der Normalbevölkerung und bei Bergleuten. Die Bedeutung der Staubbelastung und der Einfluß des Rauchens. (Chronic obstructive bronchitis of the coal miner.. An epidemiologic study of its incidence in the normal population and in coal miners. The importance of dust and smoking. Int Arch Gewerbepath Gewerbehyg 25: 75-98, 1968. 585
- ULMER W T and REIF E: Epidemiologische Untersuchungen zur klinischen Bedeutung des chronisch obstruktiven Lungenemphysems. (Epidemiologic study of the clinical importance of chronic obstructive emphysema.) Beitr Klin Tuberk 133: 180-202, 1966. 586
- VALIC F and ZUSKIN E: Byssinosis: a follow-up study of workers exposed to fine grade cotton dust. Thorax 27: 459-63, 1972. 587
- VIGY M: Tabac, bronchite chronique et emphyseme. Concours Med 3: 31-7, 1970. 588
- VYSKOCIL J: Vztah pracovnich podminek k onemocneni bronchitidou a emfyzemem plic. (Relationship between working-conditions, bronchitic-disease and lung-emphysema.) Prac Lek 20: 41-7, 1968. 589
- WALSHE M M and HAYES J A: Respiratory symptoms and smoking habits in Jamaica. Am Rev Resp Dis 96: 640-4, 1967. 590
- WENDEL H: Beziehungen zwischen Nikotinabusus und Lungenemphysem. Z Gesamte Inn Med 21: 777-80, 1966. 591
- WILHELMSSEN L, ORHA I and TIBBLIN G: Decrease in ventilatory capacity between ages of 50 and 54 in representative sample of Swedish men. Brit Med J 3: 553-6, 1969. 592
- WILHELMSSEN L and TIBBLIN G: Tobacco smoking in fifty-year-old men. 1. Respiratory symptoms and ventilatory function tests. Scand J Resp Dis 47: 121-30, 1966. 593
- WOOLCOCK A J, BLACKBURN C R, FREEMAN M H, ZYLSTRA W and SPRING S R: Studies of chronic (nontuberculous) lung disease in New Guinea populations. Am Rev Resp Dis 102: 575-90, 1970. 594
- ZWI S, SLUIS-CREMER G K and DU PREEZ L: A survey of pulmonary function in male office workers. Med Proceedings 13: 569-74, 1967. 595

1005051421

VI: BRONCHOPULMONARY FUNCTION IN SMOKERS AND NONSMOKERS

There are several investigations comparing measurements of bronchopulmonary function in smokers and nonsmokers. The results are discussed in this section, as distinct from those contrasting patients having pulmonary emphysema or chronic bronchitis with healthy controls (see Sections II and III). The separation is not a common practice because of the widespread belief that in smokers there is an abnormal bronchopulmonary condition representing the early stages of chronic bronchitis or pulmonary emphysema. There is no clinical or experimental support for this assumption.

With regard to the literature on this topic, it is important to point out that in the follow-up of smokers who show subnormal bronchopulmonary functioning there is no report of a subject who has developed chronic bronchitis and pulmonary emphysema. Most of the available articles deal with a comparison of smokers and nonsmokers executed once without a follow-up. The bibliographic list containing articles which serve as a background to this section is as follows:

No. 13. Pulmonary functional test.

1005051425

VI-A. VENTILATORY FUNCTION

Several reports have appeared describing the effects of cigarette smoking on lung function. The conclusions are varied and depend on the manner of comparing smokers with nonsmokers. This discussion considers the importance of age, sex, height, environment and country of origin in determining the influence of cigarette smoking on pulmonary ventilation.

1. Age, sex, height and environment. A group of 302 subjects in Australia was investigated by Read and Selby (1961). The results were expressed as regression coefficients for mean expiratory flow based on age and height. Smokers without symptoms did not differ significantly from nonsmokers. However, smokers who complained of coughing with or without expectoration had lower ventilatory function than nonsmokers. The authors concluded that smoking alone does not reduce ventilatory function and suggested that a combination of genetic and environmental factors would produce symptoms and signs of decreased ventilatory function.

Cotes et al. (1966) have calculated the ventilatory capacities standardized to the average age, height and weight. They found the regression coefficient calculated separately for nonsmokers, light-to-moderate smokers and heavy smokers to be practically the same. This manner of testing the significance of the difference between smokers and nonsmokers has been overlooked by others who have correlated ventilatory capacities with age only.

1005051426

Boren et al. (1966) reported the measurements of 266 subjects in the United States, specifying their age, height and smoking habits. They noted that vital capacity, inspiratory capacity and forced expiratory rate were slightly smaller and the functional residual capacity and residual volume were slightly lower in smokers than they were in nonsmokers. The differences were explained by the difference in mean age of nonsmoking subjects, which was lower than that of any of those who smoked.

In Finland, 420 men and 608 women, ranging in age from 40 to 64 years, were examined by Huhti (1967). On the basis of regression coefficients of age and height, there was no difference in forced vital capacity, one-second forced expiratory volume and peak expiratory flow between smokers and nonsmokers. A group of 44 young male recruits in Roumania was investigated by Stanescu et al. (1968). Lung volumes and ventilatory capacities of smokers did not differ from those of nonsmokers.

2. Age and environment. Flick and Paton (1959) reported the first comparison of ventilatory tests in a group of 222 male patients at a Veterans Hospital in the United States. The maximal expiratory flow was statistically different only between 60 and 70 years of age: the mean value for 20 nonsmokers was 378 l/min and that for 61 smokers was 258 l/min. Subjects from 20 to 50 years did not show a significant difference in their maximal expiratory flow.

Smoking in the older age group (40 to 60 years) has been shown by other investigators to reduce ventilatory function: Franklin

1005051427

and Lowell (1961) in 376 male employees in Massachusetts; Catlett and Kidera (1969) in 257 male flight officers. Larson (1963) noted a difference in ventilatory function between smokers and nonsmokers, starting with the 30-year-old group in California. However, the difference cannot be attributed to smoking alone. The role of air pollution is difficult to assess in these reports, but one additional report has defined its influence. Anderson and Ferris (1965) compared the results of pulmonary function tests in a group in New Hampshire and another group in Canada. After controlling variations in age, sex and smoking habits, there were still significant differences in values of forced expiratory volume and peak expiratory flow rate. These differences could be explained by ethnic factors and atmospheric pollution.

3. Absence of age grouping. A survey of 262 American physicians, ranging in age from 25 to 79 years, showed that smokers have lower ventilatory function than nonsmokers (McIlreath and Cohen, 1966). In another group of 410 volunteers in an American community, ranging in age from 20 to 103 years, there was a decrease in ventilatory function of smokers (Edelman et al., 1966). A similar conclusion was arrived at in the examination of the following: 350 males in Pennsylvania 50 years or over (Weiss et al., 1963), 20 medical students or doctors in Massachusetts 18 to 45 years (Zwi et al., 1964), 140 males and females in Connecticut 67 to 95 years (Kiss, 1966), 150 males in India 15 to 50 years of age (Mohanty and Gupta, 1968), 298 females in Canada 25 to 59 years of age (Woolf and Suero, 1971), and 365 students in Connecticut

1005051428

occurrence of respiratory symptoms in the welders and in the controls was associated with the cigarette smoking.

In Norway, Haenszel and Hougen (1972) concluded that the prevalence of respiratory symptoms was related to urban residence and to the amount of cigarettes consumed. In Spain, Bouhuys et al. (1969 a, b) noted that in a group of 216 hemp workers the associated disabling respiratory disease is attributable not to smoking habits but to prolonged exposure to hemp dust. In Switzerland, prospective studies of 3,479 doctors (Strobel and Gisell, 1965) and 1,885 residents of Basle (Mannhart, 1962) revealed a higher incidence of chronic lung disease among smokers than among nonsmokers.

7. Eastern Europe. In Poland, most surveys were conducted among workers with the following industrial connections: port and shipyard (Dobrzyński et al., 1970a), grain elevator (Dobrzyński et al., 1970b), wool industry (Brysiewicz et al., 1970), textile (Cierniak et al., 1970; Szymczykiewicz et al., 1970), plaster works (Owsinski et al., 1971) and steel works (Council of Scientific Research, 1972). The workers who smoked cigarettes showed a higher rate of incidence of respiratory symptoms than nonsmokers. There are surveys which include residents of Bialystok (Pręgowski et al., 1970), Warsaw and (Kucewicz, 1969 a, b), Lublin (Durda and Szafranski, 1971),/ Zarze (Pudelski et al., 1971).

1005051429

In Czechoslovakia, epidemiological studies have been conducted as follows: 473 men 60 to 64 years old in Prague (Stanek et al., 1966); 441 men 50 to 65 years old in Prague (Boudik et al., 1970); 112 miners in Karvina (Pochmon et al., 1968); 3,466 hospital patients in Katowicach (Gasinska and Gburek, 1970); 2,376 persons in Brno (Vyskocil, 1968; Jancik and Jancik-Mak, 1972); and 95 men residing in Klin (Feuereisl et al., 1972). In the last-mentioned study, 5 men out of 51 who smoked 292,000 to 584,000 cigarettes during their lifetime showed no objective signs of chronic bronchitis.

The surveys in the U. S. S. R. (Petrova, 1956; Danovich et al., 1969; Futora. nsky et al., 1971), Roumania (Jelea et al., 1964; Stanescu et al., 1967), and Yugoslavia (Kalācić, 1970; Valic and Zuskin, 1972) have revealed an association between smoking and symptoms of chronic lung disease.

8. Middle East and Africa. Workers in South African gold mines have been examined by several investigators. Chatgidakis (1960) noted at autopsy that smokers with silicosis had lungs characterized by enlarged bronchial mucus glands. The enlargement was also seen in nonsmokers. In a survey of 827 males, chronic bronchitis was more common in miners than in nonminers in the same smoking category (Zwi et al., 1967; Sluis-Cremer et al., 1967 a, b; Sluis-Cremer and Sichel, 1968). The severity of emphysema in gold miners detected at autopsy was not related to smoking habits (Prinsloo and Laubscher, 1970).

1005051430

In Egypt, a group of 223 cement workers showed a significant correlation between cement exposure and wheezing, dyspnea and physical signs of chronic bronchitis. Cigarette smoking was related only to cough and expectoration (El-Sewefy and Awad, 1971). Among 89 bricklayers and 245 workers in the rolling mills, respiratory symptoms were more frequently encountered among smokers than among nonsmokers (El-Sewefy, 1970). In Israel, among 257 cotton mill workers and 64 orchestra players, smoking was a significant factor which increased the prevalence of respiratory symptoms (Chwat and Mordish, 1971). Results of a survey of 175 Indian wool workers are similar (Mathur and Misra, 1972).

9. Asian-Pacific countries. In Australia, the following types of industrial workers have been examined: coalminers (Outhred and Flynn, 1960; McKenzie et al., 1969); felt manufacturers (Gandevia and Milne, 1965), ^{and} cotton workers (Barnes and Simpson, 1968). Residents in New South Wales (Hong et al., 1967; Gandeva, 1969) and in Sydney (Lake, 1969) have also been surveyed. An association between cigarette smoking and prevalence of chronic lung disease is indicated.

The results of surveys conducted in Japan (Takenouchi, 1968; Nishimoto et al., 1970; Tsumetoshi et al., 1971), in Singapore (Da Costa, 1972), in New Zealand (De Hamel et al., 1972) and in New Guinea (Woolcock et al., 1970) have revealed a relationship between smoking and prevalence of respiratory symptoms.

1005051431

10. South America and Caribbean. The epidemiological studies, reported from Mexico (Paras Chavero et al., 1970/ Celis 1971; 1968), et al., Cuba (Rodriguez Rivera et al., 1969), Chile (Oyanguren et al., 1972) and Jamaica (Walshe and Hayes, 1967) reveal an association between smoking and prevalence of respiratory symptoms.

1005051432

BIBLIOGRAPHY

V. NON-OCCURRENCE OF CHRONIC PULMONARY DISEASE IN SMOKERS

D. MORBIDITY STATISTICS IN OTHER FOREIGN COUNTRIES

- | | Reprint |
|--|---------|
| AGUZZI G, WOOLF C R and PATERSON J F: The prevalence and type of chronic obstructive bronchopulmonary disease in very old people. <u>Canad Med Ass J</u> 94: 932-9, 1966. | 491 |
| ANDERSON D O, FERRIS JR B C and ZICKMANTEL R: The Chilliwack respiratory survey, 1963: Part IV. The effect of tobacco smoking on the prevalence of respiratory disease. <u>Canad Med Ass J</u> 92: 1066-76, 1965. | 492 |
| BARNES R and SIMPSON G R: Ventilatory capacity changes on exposure to cotton dust. <u>Med J Australia</u> 1: 897-900, 1968. | 493 |
| BEAUDRY P H: Pulmonary function survey of the Canadian Eastern Arctic Eskimo. <u>Arch Environ Health</u> 17: 524-8, 1968. | 494 |
| BIERSTEKER K: Bronchitisklachten bij Rotterdams gemeentepersoneel. (Symptoms of bronchitis among municipal personnel in Rotterdam.) <u>Ned T Geneesk</u> 112: 1208-11, 1968. | 495 |
| BIERSTEKER K: Air pollution and smoking as cause of bronchitis. <u>Arch Environ Health</u> 18: 531-5, 1969. | 496 |
| BIERSTEKER K, VAN GEUNS H A and VAN LEEUWEN P: Cough and peak flow rates of municipal employees in Rotterdam. <u>Environ Res</u> 2: 272-6, 1969. | 497 |
| BOUDIK F, GOLDSMITH J R, TEICHMAN V and KAUFMANN P-C: Epidemiology of chronic bronchitis in Prague. <u>Bull WHO</u> 42: 711-22, 1970. | 498 |
| BOUHUYS A, BARBERO A, SCHILLING R S and VAN DE WOESTIJNE K P: Chronic respiratory disease in hemp workers. <u>Am J Med</u> 46: 526-37, 1969a. | 499 |
| BOUHUYS A, SCHILLING R S and VAN DE WOESTIJNE K P: Cigarette smoking, occupational dust exposure, and ventilatory capacity. <u>Arch Environ Health</u> 19: 793-7, 1969. | 500 |
| BRILLE D: Fréquence de la bronchite chronique chez la femme rôle du tabac. <u>Rev Tuberc et Pneumol</u> 33: 794-6, 1969. | 501 |
| BRILLE D: Possibilités du dépistage au stade initial de la bronchite chronique et de l'emphysème pulmonaire. (Possibilities of detection in the early stages of chronic bronchitis and pulmonary emphysema.) <u>Rev Med</u> 11: 2201-10, 1970. | 502 |
| BRILLE D, COUDRAY P, ISRAËL-ASSELAIN R, LE MELLETIER J, MICHEL F B, MIGUÈRES J, PHAM G T and VOISIN C: Colloques sur la bronchite chronique. I. -- Nosologie et épidémiologie. <u>Rev Tuberc Pneumol</u> 34: 723-48, 1970. | 503 |
| BRYŚIEWICZ K, BULUK H, CESARZ-FRONCZYK M, KORDECKA J, LESZCZYŃSKI B, ŁUKJAN Z and SADOKIERSKA H: Wpływ Pracy W Warunkach Zapylenia Na Częstość Występowania Przewlekłych Zapaleń Oskrzeli U Pracowników Zakładów Przemysłu Wełnianego Im. Sierżana W Białymstoku. (The effect of occupation in dustiness on the prevalence of chronic bronchitis among the workmen of the Sierżan's establishments of wool industry at Białystok.) <u>Gruzlica</u> 38: 657-61, 1970. | 504 |

1005051433

Bibliography V-D

Reprint

- CEDERLÖF R: Urban factor and prevalence of respiratory symptoms and "angina pectoris." Arch Environ Health 13: 743-8, 1966. 505
- CEDERLÖF R, EDFORS M-L, FRIBERG L and JONSSON E: Hereditary factors, "spontaneous cough" and "smoker's cough". Arch Environ Health 14: 401-6, 1967. 506
- CEDERLÖF R, FRIBERG L and HRUBEC Z: Cardiovascular and respiratory symptoms in relation to tobacco smoking. A study on American twins. Arch Environ Health 18: 934-40, 1969. 507
- CEDERLÖF R, FRIBERG L, JONSSON E and KAIJ L: Morbidity among monozygotic twins. Arch Environ Health 10: 346-50, 1965. 508
- CEDERLÖF R, FRIBERG L, JONSSON E and KAIJ L: Respiratory symptoms and "angina pectoris" in twins with reference to smoking habits. An epidemiological study with mailed questionnaire. Arch Environ Health 13: 726-37, 1966. 509
- CELIS S A, DÍAZ O J, GOROCICA D and CANO V F: Enfisema pulmonar y contaminacion aerea. Neumol Cir Torax 29: 135-41, 1968. 510
- CHATGIDAKIS C B: A study of the bronchial mucous glands in white South African gold miners. Arch Environ Health 1: 335-42, 1960. 511
- CHWAT M and MORDISH R: Respiratory symptoms and byssinosis among textile workers in Israel. Harefuah 80: 559-62, 586-7, 1971. 512
- CIERNIAK E, JELONKIEWICZ J, SŁODCZYK M, CIERNIAK J and PAWLAK F: Przewlekłe Zapalenie Oskrzeli Wśród Pracowników Zakładów Włókienniczych. (Chronic bronchitis in the workmen of textile industry.) Gruźlica 38: 635-41, 1970. 513
- COUDRAY P, SERISE M and FRÉOUR P: Recherche épidémiologique sur les bronchites chroniques et les insuffisances respiratoires. Étude de prévalence dans un échantillon de femmes de 30 a 70 ans. Rev Tuberc Pneumol 33: 769-80, 1969. 514
- COUNCIL OF SCIENTIFIC RESEARCH ON CHRONIC NONSPECIFIC RESPIRATORY DISEASES IN CRACOW, POLAND: Przewlekłe Nieswoiste Choroby Układu Oddechowego Wśród Mieszkańców Krakowa. XVI. Wyniki Badania Przekrojowego w Hucie im Lenina. (Chronic nonspecific respiratory diseases in the inhabitants of Cracow, XVI. Results of a cross section study in the Lenin steel works.) Przegląd Epidemiologiczny 26: 125-34, 1972. 515
- DA COSTA J L: Chronic obstructive lung disease (COLD): A comparison between men and women. Singapore Med J 13: 74-8, 1972. 516
- DANOVICH B Z, KOROVINA O V, SMIRNOV I P and ANISIMOVA N A: On the epidemiology of chronic nonspecific diseases of the lungs. Teraper Arkhiv 41: 63-8, 1969. 517
- DEHAMEL F A and O'DONNELL T V: Smoking habits and respiratory symptoms of Dunedin public servants. New Zealand Med J 76: 1-4, 1972. 518
- DOBRYŃSKI W, KISIELEWICZ J and KOCIECKA I: Analiza Kliniczno-Statystyczna Przewlekłych Nieżytów Oskrzeli U Pracowników Portu I Stoczni W Szczecinie. (Clinical and statistical analysis of chronic bronchitis in port and shipyard workers.) Medycyna Pracy 21: 294-306, 1970a. 519

1005051434

Bibliography V-D

Reprint

- DOBRYŃSKI W, KISIELEWICZ J and KOCIECKA I: Przewlekłe Zapalenia Oskrzeli U Pracowników Portowego Elewatora Żywnościowego. (Chronic bronchitis among the workmen of a harbour grain elevator.) Gruzlica 38: 651-6, 1970b. 520
- DURDA M and SZAFRAŃSKI W: Przewlekłe nieswoiste choroby płuc wśród ludności wiejskiej woj. lubelskiego. (Chronic non-specific diseases of the lung among the rural population of the Lublin Voivodship.) Gruzlica 39: 616-20, 1971. 521
- EL-SEWEFY A Z: Chest symptomatology in a Sheffield steel works (S. P. T.). J Egypt Med Assoc 52: 578-81, 1970. 522
- EL-SEWEFY A Z and AWAD S: Chest symptomatology in an Egyptian Portland cement factory. J Egypt Med Assoc 54: 457-64, 1971. 523
- FEJEREISL R, KRZHIVANEK I, REIL I, KUBIK A and FELKEL K: Effect of smoking on the cardiopulmonary function. Klinicheskaya Meditsina 50: 82-4, 1972. 524
- FOGH A, FROST J and GEORG J: Respiratory symptoms and pulmonary function in welders. Ann Occup Hyg 12: 213-8, 1969. 525
- FOURNIER E and ZIVY P: Poumon et tabac. (Lung and tobacco). Poumon Coeur 26: 1109-25, 1970. 526
- FRÉOUR P, COUDRAY P, ROUSSEL A and SERISÉ A: Les bronchites chroniques et l'insuffisance respiratoire dans l'agglomération de Bordeaux. J Med Bordeaux 143: 1865-79, 1966. 527
- FUTORYANSKY Y I, DETSIK Y I, SHUFLAT A N, SIMONCHIK V N and BARANSKY S M: Effect of smoking on the ventilation function of the lungs. Klinicheskaya Meditsina 49: 70-4, 1971. 528
- GANDEVIA B: A productive cough upon request as an index of chronic bronchitis: the effects of age, sex, smoking habit and environment upon prevalence in Australian general practice. Med J Australia 1: 16-20, 1969. 529
- GANDEVIA B and MILNE J: Ventilatory capacity on exposure to jute dust and the relevance of productive cough and smoking to the response. Brit J Industr Med 22: 187-95, 1965. 530
- GAUTHIER H: L'insuffisance respiratoire au Canada. Laval Med 41: 992-4, 1970. 531
- GASIŃSKA T and GBUREK Z: O Szkodliwości Przewlekłego Palenia Tytoniu. (On the harmful effects of chronic tobacco smoking.) Wiad Lek 23: 2157-62, 1970. 532
- GOLLI V: Étude épidémiologique des bronchopathies non spécifiques. Bronches 20: 313-30, 1970. 533
- HAENSZEL W and HOUGEN A: Prevalence of respiratory symptoms in Norway. J Chronic Dis 25: 519-44, 1972. 534
- HAGERUP L and LARSEN M: Tobaksrygning og respiratoriske symptomer i en dansk population. (Tobacco smoking and respiratory symptoms in a Danish population.) Ugeskr Laeg 133: 1302-6, 1971. 535
- HANY A, BURCKHARDT P and BUHLMANN A: Zur Klinik und Pathophysiologie der Lungenasbestose. Schweiz Med Wochenschr 97: 597-603, 1967. 536

1005051435

- HONG C S, GANDEVIA B and LOVELL H: Ventilatory capacity in a series of male adults and the effect of respiratory symptoms, productive cough, smoking habit and occupation. Med J Australia 1: 169-72, 1967. 537
- HUHTI E: Prevalence of respiratory symptoms, chronic bronchitis and pulmonary emphysema in a Finnish rural population. Field survey of age group 40-64 in the Harjavalta area. Acta Tuberc Pneumol Scand Suppl 61: 101 pp., 1965. 538
- HUHTI E: Chronic respiratory disease among old people in a Finnish rural area. Ann Med Int Fenn 55: 99-105, 1966. 539
- HUHTI E, RYHANEN P, VUOPALA U and TAKKUNEN J: Chronic respiratory disease among pulp mill workers in an arctic area in Northern Finland. Acta Med Scand 187: 433-44, 1970. 540
- INTERNATIONAL SYMPOSIUM IN SAN JUAN: Twin registries in the study of chronic disease. With particular reference to the relation of smoking to cardiovascular and pulmonary diseases. Acta Med Scand Suppl. 523: 40 pp., 1971. 541
- IRNELL L and KIVILOOG J: Bronchial asthma and chronic bronchitis in a Swedish urban and rural population. With special reference to prevalence, respiratory function and socio-medical condition. Scand J Resp Dis (Suppl) 66: 86pp., 1968. 542
- JANCIK E: Quelques données et corrélations provenant d'une étude épidémiologique sur l'incidence des symptômes caractéristiques des maladies respiratoires chroniques non spécifiques. Rev Tuberc Pneum 34: 749-52, 1970. 543
- JANCIK E and JANCIK-MAK M: Chronische unspezifische lungenerkrankungen. (Chronic non-specific lung diseases). Praxis Pneumologie 26: 69-81, 1972. 544
- JARVINEN K A, PATIALA J and THOMANDER K: The role of chronic smoking in the etiology of obstructive pulmonary emphysema. A study of 3,375 persons. Ann Med Intern Fenn 49: 307-311, 1966. 545
- JELEA A, ILIE E and GAVRILĂ F: Contribuții la studiul insuficienței pulmonare de etiologie tabagică. (Contributions to the study of pulmonary insufficiency of tabacic etiology.) Medicina Internă 16: 229-34, 1964. 546
- JÖRGENSEN H and SVENSSON Å: Studies on pulmonary function and respiratory tract symptoms of workers in an iron ore mine where diesel trucks are used underground. J Occup Med 12: 348-54, 1970. 547
- KALAČIĆ I: Kronični bronhitis i ventilacijska funkcija pluća u pušača i nepušača. (Chronic bronchitis and ventilatory lung function in smokers and nonsmokers.) Arh Hig Rada 21: 5-12, 1970. 548
- KOURILSKY R, BRILLE D and HATTE M J: Etude statistique de la relation entre le tabac et la bronchite chronique. Bull Acad Nat Med 150: 318-29, 1966. 549
- KUCEWICZ J: Przewlekłe Nieswoiste Choroby Układu Oddechowego Wśród Mieszkańców Krakowa. VIII. Metoda Dyskryminacyjna Fishera W Analizie Wpływu Palenia Tytoniu na Występowanie Objawów Chorobowych. (Chronic nonspecific respiratory diseases in the city of Cracow.) Przeg Epid 23: 331-7, 1969a. 550
- KUCEWICZ J: Chronic nonspecific respiratory diseases in the city of Cracow. Epidemiol Rev 23: 159-65, 1969b. 551

1005051436

- LAKE B: Morbid conditions at death in old men. J Chronic Dis 21: 761-79, 1969. 552
- LEFCOE N M and WONNACOTT T H: The prevalence of chronic respiratory disease 553
in the male physicians of London, Ontario. Canad Med Assoc J 102: 381-5, 1970.
- LUNDMAN T: Smoking in relation to coronary heart disease and lung function in twins.
Acta Med Scand 180 (Suppl. 455): 1-75, 1966. 554
- MANNHART M: Krankheiten in ihrer Beziehung zu Genubmitteln in der Bevölkerung
von Basel. Enquête bei erwachsenen Personen 1956 und 1961. Zeitschrift
für klinische Medizin 157: 240-57, 1962. 555
- MATHUR K C and MISRA S N: Incidence of pulmonary diseases among wool
workers. Indian J Chest Dis 14: 172-8, 1972. 556
- MCDONALD J C, BECKLAKE M R, FOURNIER-MASSEY G and ROSSITER C E:
Respiratory symptoms in chrysotile asbestos mine and mill workers of
Quebec. Arch Environ Health 24: 358-63, 1972. 557
- MCKENZIE H I, GLICK M and OUTHRED K G: Chronic bronchitis in coal
miners: ante-mortem/post-mortem comparisons. Thorax 24: 527-35,
1969. 558
- NERI L C, MANDEL J S, O'CONNOR M L and LARSON M: A household survey
of chronic obstructive pulmonary disease in Ottawa: Methodological
problems and results of pilot survey. Canad J Pub Health 61: 407-12, 1970. 559
- NISHIMOTO Y, BURROWS B, MIYANISHI M, KATSUTA S, SHIGENOBU T and
KETTEL L J: Chronic obstructive lung disease in Japanese poison gas
workers. Am Rev Resp Dis 102: 173-9, 1970. 560
- OUTHRED K G and FLYNN M J: Some aspects of chronic respiratory diseases in
coalminers in New South Wales, Australia. Dis Chest 37: 390-9, 1960. 561
- OWSIŃSKI J, JANUŠ T and MYSIK M: Występowanie przewlekłych nieswoistych
chorób układu oddechowego (p. n. ch. u. o.) wśród pracowników Zakładu
Przemysłu Gipsowego „Dolina Nidy” w Gackach. (Occurrence of chronic
unspecific diseases of the respiratory system among workers in the plaster
works at Dolina Nidy in Gacki.) Przeg Lek 28: 476-80, 1971. 562
- OYANGUREN H, DONOSO H, PRIETO L, VARGAS S and PAZ S: Prevalencia de
la bronquitis crónica en un área urbana y una rural de Santiago y su relación
con el grado de contaminación atmosférica. (Prevalence of chronic bronchitis
in urban and rural areas of Santiago: Its relation with the degree of air
pollution). Rev Med Chile 100: 101-5, 1972. 563
- PARÁS C E, MERCADO C E and QUINTERO N A: Tabaquismo y Cardiopatía Coronaria.
Arch Inst Cardiol Mex 40: 128-34, 1970. 564
- PARÁS C E, MERCADO E and QUINTERO A: Simposio sobre problemas médicos
originados por el tabaquismo. II. Alteraciones cardiovasculares. Neumol
Cir Tórax Méx 32: 15-8, 1971. 565
- PETROVA A: Influence of occupational hazards in tobacco fermentation factories in
Bulgaria (town Plovdiv) on the organism of the workers. 69-81, 1956. 566
- POCHMON V, SKARABELLOVA M and LEGOSTOV J: Chronic obstructive bronchitis
in miners of Karvine District. Prac Lekar 20: 366-71, 1968. 567
- POSSNER W: Betrachtungen und Ergebnisse zur Epidemiologie nichtspezifischer
Erkrankungen der Atemwege. Z Ges Hyg 16: 545-52, 1970. 568

1005051437